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# SCIENCE

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FRIDAY, APRIL 7, 1899.

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MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor. Professor J. McKeen Cattell, Garrison-on-Hudson N. Y.

## THE FRESH-WATER BIOLOGICAL STATIONS OF THE WORLD.\*

AWAY back at the beginning of the investigation of minute forms of life, which followed upon the invention of the microscope,

\* Annual address of the President before the Nebraska Academy of Sciences at Lincoln, November 25, 1898.

or shall I say discovery, for it seems to have been historically an accident, the early students searched the ditches and ponds and lakes for the organisms which constituted the objects of their study. Anton von Leeuwenhoek, whose name is familiar to you as one of the most zealous early workers among microscopic objects, enriched science by a long series of new organisms of this character. Roesel von Rosenhof, whose careful investigations on various fresh-water animals, published under the title of 'Insect Diversions' are still standard sources of information concerning the habits and structure of these forms, together with Swammerdam, Trembley, O. F. Müller, and a whole host of others, devoted their attention almost exclusively to the fresh-water fauna. But this movement seems to have culminated with the appearance, in 1838, of Ehrenberg's famous volume 'The Infusion Animalcules as Complete Organisms.'

Extended investigations had already impressed zoologists with the richness of the marine fauna. Numerous animal groups of common occurrence in the sea were apparently entirely wanting in fresh water, and the astounding richness of the sub-tropical and tropical oceans with which the European investigators came early in contact on the shores of the Mediterranean, and in the expeditions to the new lands of the Tropics, entirely over-

tion of a difficult subject. We are glad to receive 'The Briefer Course' (Holt), revised by Professor G. W. Fitz, of Harvard University, and to commend it cordially. The book has been corrected throughout and a chapter added on growth and nutrition. The three appendices, which occupy nearly one fourth of the book, are all open to criticism. They are on 'Emergencies,' 'Alcohol and Tobacco' and 'Demonstrations and Experiments.' 'Emergencies' make up part of the examination in physiology which may be taken for entrance to Harvard College, but it is not evident that a school boy will profit intellectually or practically by being told how to treat apoplexy. The demonstrations and experiments, also part of the Harvard examination, may in their present form be useful for the teacher, but scarcely for the student. The reviser states that the appendix on narcotics is retained against his judgment. The injurious effects of narcotics must by foolish laws be taught in most public school courses on physiology; but it would be possible to prepare a statement that would be scientifically correct, even though its teaching might be ethically obnoxious. The statements in this book are not exactly incorrect, but they would produce false impressions on young students. The results of excess are pictured, and the boy is left to infer that the final state of his father, who drinks a glass of wine for dinner, will be delirium tremens. But the boy will be more likely to conclude that physiology is not an 'exact' science.

MINERVA, 'A Yearbook of the Learned World,' is indispensable to the editor and useful to every one who wishes to keep informed on the progress of education and science. As is well known, the book contains accounts of universities, libraries, museums, learned societies, etc., throughout the world. The names of over 25,000 officers of these institutions are given, and with an accuracy that is truly remarkable. The eighth volume, 1899, which reaches us from Messrs. Lemcke and Buechner (12 Broadway, New York City), is thoroughly revised from official sources, and is enlarged and improved in several respects, including the addition of a number of Canadian institutions. Programs of the various international scientific

congresses are promised for next year. The importance of the great universities of the world cannot be judged from the number of students, as the data are not comparable, but in this respect the order of the first ten is given as follows: Paris, 12,047; Berlin, 10,306; Madrid, 6,143; Vienna, 5,710; Naples, 5,103; Moscow, 4,461; Budapesth, 4,407; Munich, 3,997; Harvard, 3,674; St. Petersburg, 3,615. As a matter of fact, Harvard, with over 5,000 students all told, is probably now the fourth in size of the universities of the world, being surpassed only by Paris, Berlin and Vienna. There are thirty universities having over 2,000 students, and, of these, nine are in the United States, four in Russia and in Great Britain, three in France, in Germany and in Austria-Hungary, two in Italy and one in Spain and in Greece.

ANOTHER useful work of reference is *Who's Who?* edited by Mr. Douglas Sladen and published by Black in London and by Macmillan in New York. It contains brief bibliographies of people talked about in Great Britain, including all the leading men of science and a complete list of the members of the Royal Society. Americans are also noticed, but only in small numbers. Presidents Gilman and Harper are included, but not President Eliot. The late Professor Marsh is the only American man of science whose name we have noted.

#### BOOKS RECEIVED.

*Report of the Seventh Meeting of the Australasian Association for the Advancement of Science, held at Sydney.* Edited by A. LIVERSIDGE. Sydney, Published by the Association. Pp. lii+1161. 10s. 6d.

*Éléments de Botanique.* PH. VAN TIEGHEM. Paris, Masson et Cie. 1898. 3d edition, revised and enlarged. Vol. I., pp. xvi+559. Vol. II., pp. xv+612.

*The Fairy Land of Science.* ARABELLA B. BUCKLEY. New York, D. Appleton & Co. 1899. Pp. x+252.

*How to Know the Ferns.* FRANCIS THEODORA PARSONS. New York, Charles Scribner's Sons. 1899. Pp. xiv+210. \$1.50.

*Papers and Addresses.* N. Y. State Veterinary College, 1896-1898. Ithaca, N. Y. 1898.

*Die Continuität der Atomverkettung.* GEORG HÖRMANN. Jena, Gustav Fischer. 1899. Pp. 118. Mark 3.

*Text-Book of Physics—Sound.* J. H. POYNTING and J. J. THOMSON. London, Charles Griffings & Company; Philadelphia, J. B. Lippincott & Co. Pp. x+163.

#### SCIENTIFIC JOURNALS AND ARTICLES.

THE *American Journal of Science* contains the following articles:

Glacial Lakes Newberry, Warren, and Dana, in Central New York, H. L. FAIRCHILD.

Rapid Method for the Determination of the Amount of Soluble Mineral Matter in a Soil, T. H. MEANS.

New Type of Telescope Objective especially adapted for Spectroscopic Use, C. S. HASTINGS.

Phenocrysts of Intrusive Igneous Rocks, L. V. PRUSSON.

Occurrence, Origin and Chemical Composition of Chromite, J. H. PRATT.

Influence of Hydrochloric Acid in Titrations by Sodium Thiosulphate, J. T. NORTON, Jr.

Rock-forming Biotites and Amphiboles, H. W. TURNER.

One Little Known and one Hitherto Unknown Species of Saurocephalus, O. P. HAY.

Some American Fossil Cycads, G. R. WIELAND.

THE *American Geologist* for April opens with an extended article by Professor William M. Davis on the peneplain, being a reply to an article by Professor Tarr in a previous issue of the journal. Professor Davis writes from Cannes, France. Following are articles: By Professor George E. Ladd, on the Cretaceous Clays of Middle Georgia; by Professor H. N. Winchell, on the optical characters of Jacksonite, and by Professor C. H. Hitchcock, giving an account of his observations in Australasia.

THE *Journal of the Boston Society of Medical Sciences* contains a paper by Dr. Franklin G. White on 'Blood Cultures in Septicemia, Pneumonia, Meningitis and Chronic Disease,' in which, among the conclusions reached, is that the detection of specific bacteria in the blood in cases of sepsis and pneumonia gives an unfavorable prognosis. A brief but interesting article by E. H. Bradford treats of the 'Movement of the Front of the Foot in Walking;' and Dr. John Dane follows with a 'Report of Some Studies upon the Arch of the Foot in Infancy,' showing that this arch is present in infants but is masked by a sustaining pad of fat.

THE frontispiece of the *Osprey* for February is a plate of the Hairy Woodpecker by Fuertes; the first article, 'Notes from North Dakota,' by E. S. Rolfe treats of egg collecting in the vicinity of Devil's Lake. Mr. Geo. F. Breninger has an article on 'Gambel's Quail;' and Rev. W. F. Henninger discusses 'The Scourge of Egg Collecting' in a manner perhaps a little over-zealous, but with an array of facts that merit serious consideration. The feature of the number is Dr. Gill's long letter headed 'A Great Work Proposed,' wherein he lays before the readers at some length a number of suggestions for a new history of North American birds. The publication of the *Osprey* for March brings this magazine down to date; Julia S. Robins contributes an article on Wilson entitled 'Behind the Wedding Veil,' and Witmer Stone follows with a too short paper on 'An Old Case of Skins and its Associations,' being notes on one of the earliest ornithological collections in the United States. In 'Snap Shots with Pen and Camera,' E. S. Rolfe gives us half a dozen views of birds and nests, with accompanying text. 'The Gourdheads in the Cypress Swamp of Missouri,' by Otto Widmann, tells of the habits of the Wood Ibis, gourdhead being a local name for this bird. W. B. Davis has some suggestive notes on 'Odd Actions of Birds Unexplained,' and the customary notes, editorials and reviews complete this unusually good number.

#### SOCIETIES AND ACADEMIES.

##### CHEMICAL SOCIETY OF WASHINGTON.

THE regular meeting was held on February 9, 1899.

The first paper of the evening was read by Mr. F. D. Simons, and was entitled 'The Detection of Caramel Coloring Matter in Spirits and Vinegar,' by C. A. Crampton and F. D. Simons.

The paper states that the two principal tests given in the books for the detection of caramel coloring matter are, first, the reduction of Fehling's solution, and second, the precipitation of the caramel by means of paraldehyde. Neither of these tests has given satisfactory results in the hands of the authors.